

# **GUIDELINES FOR EQUIPMENT AND PROCEDURES FOR THE REMEDIATION OF CONTAMINATED LEACHING POOLS**

## **BACKGROUND:**

As part of its groundwater protection program, the Suffolk County Department of Health Services (the Department) routinely reviews industrial waste disposal practices at commercial facilities throughout the county. As part of the evaluation, the septic tanks and/or leaching pools associated with sanitary systems, floor drains, storm water runoff etc. are often sampled for the presence of toxic or hazardous materials. (For the purpose of this document, storm drains, dry wells, sanitary pools and "Class V Injection Wells" will all be referred to as leaching pools.) If the level of contamination exceeds the Department's "action levels" (see SOP 9.95), the person(s) responsible for the discharge and/or those in possession and/or control of the property will be required to remove the contaminants from the leaching pool. This is done in order to prevent the contaminants from ultimately leaching into groundwater, which is the sole source of the drinking water supply for Suffolk County.

Since available removal and/or remediation techniques may vary depending on the site-specific conditions and the capabilities of contractors, the responsible parties should discuss their remediation plan with the Department's representative prior to initiating any remedial activity.

## **REQUIREMENTS UNDER THE LAW:**

Section 760-1217 of the Suffolk County Sanitary Code requires:

- 1) the person(s) who discharge(s),
- 2) the person(s) in possession or control of the source of a discharge and/or
- 3) the person(s) in possession or control of a premises that has had a discharge of toxic or hazardous material

to reclaim, recover and dispose of the discharged toxic or hazardous material and any substances contaminated by them. Where time permits, this cleanup must be in accordance with a written protocol previously submitted to and approved by the Commissioner.

The Department will allow the use of this document in lieu of the required written protocol. Minor changes may be permitted, but only with prior approval from this office. Any major deviation from these procedures will require the submission of a site specific written protocol.

### **PLANNING:**

Thorough planning prior to the initiation of cleanup activities will expedite the project and help ensure that all required work is accomplished. The following concerns should be considered in this process:

- 1) Selecting a contractor
- 2) Determining the extent of the contamination
- 3) Sample collection and analysis
- 4) Remediation techniques
- 5) Safety
- 6) Waste storage and disposal
- 7) Permits
- 8) Closure

A careful review of this planning step with a representative of the Department may help to prevent excessive delays, which may result in needless penalties and/or additional costs.

### **SELECTING A CONTRACTOR:**

Performing the remediation of a leaching pool includes the removal of contaminated material from the leaching pool and the transportation of this material from the site to a suitable disposal facility. In order to do this work, you should hire a company properly equipped and permitted to perform the work **or** an environmental consultant who is capable of coordinating the necessary work through subcontractors.

The Department does not recommend contractors. It is up to the responsible parties to evaluate their needs and capabilities of the contractors under consideration. Costs will vary between contractors based on a number of factors including but not limited to hourly rates for personnel and equipment, laboratory fees and transportation/disposal costs. Therefore, you may wish to secure written estimates for the remediation from several contractors in order to compare the costs. Questions, which should be addressed, include:

- 1) How complex is the task? i.e., Do other structures need to be located and sampled? Will groundwater be encountered?
- 2) Which phases of the job can the responsible parties handle directly?
- 3) Which phases will have to be contracted or subcontracted?
- 4) How will the waste be classified, since this affects the cost of its disposal?

5) Where is the ultimate disposal site?

**DETERMINING THE EXTENT OF THE CONTAMINATION:**

The Department assumes that if contaminants are discovered in one structure within a leaching system, then all portions of the system contain similar contaminants. The Department will, therefore, require all associated septic tanks, distribution boxes and leaching pools be remediated if sufficiently high levels of contamination are found in the original sample. Therefore, the responsible parties or their contractors must determine the number and types of structures in the system.

The requirement to remediate specific structures within a leaching system may be waived if it can be demonstrated that these structures do not contain levels of contamination which exceed the Department's action levels as defined by SOP 9.95. In order to determine the level of contamination in a leaching pool, septic tank or other portion of the system, samples must be collected and analyzed (see below). The Department will then determine the need for remediation based on the results of the sample analyses.

Determining the depth of the contamination both within and below the bottom of specific structures prior to performing a cleanup is possible. However, since most cleanups are found to be satisfactory after excavating to visually clean soil, determining the depth of the contamination is usually required only after the removal of contaminated material has approached a point where the structural integrity is in jeopardy or safety considerations have been compromised.

**SAMPLING AND ANALYSIS:**

It will be necessary to take samples from the leaching pool(s) at several points during the process of remediation. Initial samples are taken to determine the extent of contamination prior to the actual removal of contaminated material. Waste characterization samples are taken by the contractor for the purpose of complying with state and federal transportation and disposal laws. Post-excavation or end point samples are taken from the sediments remaining after the removal of known contaminated materials and are used to determine the effectiveness of the remediation and/or the need for additional removals.

It is the usual practice of the Department to require initial samples of both the liquid and sludge portions of the waste in a pool. These samples are then analyzed for volatile organic compounds (VOCs) by EPA method 8240 or 8260 and total heavy metals by acid digestion. The parameters included in these analyses are listed in Tables 1 and Tables 2 below. Additional testing may be required by the Department as warranted.

Waste characterization tests may have to be performed on the extracted material to determine possible disposal sites. A representative sample of the waste must be obtained and submitted to a state certified laboratory for analysis. Waste characterization samples may include analyses for flash point, corrosivity, reactivity and leachability (TCLP). These analyses are not required by the Department but may be required by the disposal facility and are taken at the discretion of the contractors responsible for the transportation and disposal of the contaminated material.

In general, the cleanup operation proceeds until either visibly clean soil is encountered or the excavation is determined, by the firm's representative, to be unsafe. End point samples must then be collected and analyzed using the same methods used for the initial samples. The results of these analyses are reviewed by the Department to determine if additional remediation will be necessary or if "no further action" will be required.

If groundwater is encountered, a sample of the water entering the excavation must also be collected. Unless other arrangements are made in advance, these samples must be analyzed for the same parameters and by the same methods listed above and/or others as required by this Department. Results of these analyses must be submitted to the Department for review.

When additional sampling and/or remediation is to be done, the activities must be witnessed by a representative of the Department. Therefore, it will be necessary to establish a mutually agreeable time with the Department's representative scheduling any field activities. The Department reserves the right to split samples at any time. Any variation of the above protocol must be approved by the Department in advance.

### **REMEDATION TECHNIQUES:**

In most cases, excavation of the contaminated material is the quickest, the most thorough and the most cost effective method of addressing a problem. This normally requires the use of a pumper truck to extract the liquid portion of a pool and a "super sucker", "guzzler" or similar vacuor truck for removing sludge/soil. Depending on site-specific conditions, "orange peelers", backhoes and cranes may also be used.

Scraping and/or powerwashing the sidewalls of a pool may also be necessary to remove residual contamination. A high pressure, low volume power washing unit is generally the most efficient and cost effective method to remove residue on the walls of a pool. Again, site specific conditions should be reviewed with a representative of the Department prior to initiating the cleanup.

Be advised that aeration and/or chemical treatment of any subsurface leaching system to enhance the leachability of hazardous material is a violation of Article 12 of the Suffolk County Sanitary Code.

In order to adequately clean a contaminated pool, the pool's collar or dome may have to be removed, especially if the cover is off center. In some cases the contamination may be so extensive that ring removal is also necessary. These possibilities should be discussed with the Department so that the required equipment is available at the site.

Some older leaching pools are constructed of tiers of concrete block or brick. These pools are subject to collapse as bottom sediments are removed. Should such a pool collapse during the course of a remediation it may be necessary to replace the leaching pool. The contractor must be prepared for this possibility.

If satisfactory soil/groundwater conditions can not be attained by removal techniques, soil venting or groundwater treatment may be necessary. A subsurface site investigation, including the installation of soil borings and/or monitoring wells may be required in order to make this determination.

### **SAFETY:**

Although the Department of Health Services does not enforce the standards established by the Office of Safety and Health Administration (OSHA), all work must be performed in compliance with OSHA regulations especially 29 CFR Section 1910.

Certain activities, such as lowering an employee into a leaching pool to perform the cleanup, are considered confined space entries, which increase the level of risk to which the worker is exposed. These activities are prohibited without strict adherence to 29 CFR 1910.134. Air monitoring equipment, respiratory protection, safety lines, a worker extraction system etc. must be provided.

As stated above, older block pools are more susceptible to collapse, especially during and after remediation. Since removal of the underlying soil increases the probability of pool collapse, the Department strongly recommends replacing block pools with precast rings. If the pool is intended to remain in use after the cleanup has been performed, a qualified professional should certify the integrity of the structure.

If the Department's representative witnesses any conditions that are interpreted as unsafe, the contractor will be notified to take corrective action. If the contractor fails to correct the problem noted, the inspector will leave the site without approving the cleanup. In addition, OSHA will be notified of the activity and take whatever action it deems necessary to resolve the matter.

## **WASTE STORAGE AND DISPOSAL:**

At certain contaminant levels, liquid and/or sludge wastes may be acceptable for disposal at the Bergen Point Sewage Treatment Facility. Approval from the Suffolk County Department of Public Works (SCDPW) is required **prior** to disposal at the Bergen Point Sewage Treatment Facility. Contact Robert Falk (631) 852-4107 or Kevin Oldham (631) 852-4108 of the SCDPW for approval prior to pumping this material.

If any portion of the contaminated material is allowed at the Bergen Point Sewage Treatment Facility, a regular cesspool pump truck can be used.

If the liquid portion is not acceptable to SCDPW, it must be removed and disposed of, along with the sludge, by a licensed industrial waste transporter. A partial list of State approved transporters is included to assist you in your efforts. Additional industrial waste transporters are listed in the phone book under several headings including "Environmental Services" and "Waste Disposal". You may also contact the Solid Waste Unit of the New York State Department Environmental Conservation (DEC) in Stony Brook at (631) 444-0375 or in Albany at (518) 457-3254 to confirm that the hauler can transport the material. Be advised that it is the responsibility of the generator of the waste to ensure that the transporter is licensed to handle the material.

The transportation of the contaminated material from the site will require the use of appropriate containment vessels. In some cases, the vehicles removing the material from the ground are permitted to transport the material from the site. In other cases, secondary vessels such as Department of Transportation (DOT) approved drums or liquid tight "rolloff" containers specifically designed for this purpose may be used. The containers must be free of residual waste from prior usage. Once filled, they must be immediately labeled to indicate their contents and properly sealed.

Immediate removal of contaminated material from the site may not always be possible. Should delays in the disposal of contaminated material be encountered the material must stored in properly sealed and labeled drums and/or rolloff containers. Storage of this material on tarps is not acceptable. The storage of this waste on site may lead to odor and/or other regulatory problems. Permits may be required by county, state and federal agencies for the extended storage of industrial and/or hazardous wastes. It is, therefore, best to have this material removed by a licensed hauler as quickly as possible.

In order for the cleanup to be considered complete, copies of all disposal receipts must be submitted to this office.

## **PERMITS:**

Since the remediation will result in the generation of a quantity of contaminated liquid, soil and/or sludge, you may be required to obtain a Federal Industrial Waste Generator's Permit. You should contact Mr. Jack Hoyt of the USEPA, RCRA Programs, at (212) 637-4106 and request form #8700-12.

As discussed above under Waste Storage and Disposal, transporters must be permitted to transport contaminated material from the site.

### **CLOSURE:**

Upon acceptable completion of the remediation, sanitary pools will be allowed to remain in use for sanitary wastes only. Likewise, storm drains adequately cleaned will be allowed to remain in use exclusively for collection of storm water. Floor drain leaching pools, on the other hand, must be abandoned after the remediation. This can be accomplished by filling the pool with a clean inert material such as sand and permanently sealing it with concrete or other material. The continued use of the pool as a storm drain after the remediation must be approved by the Department.

### **SUMMARY:**

During the entire remediation process, from the planning stage through the final closure, it is imperative that the Department is kept informed. All variations from the above protocol must be discussed with this office and approved in advance. The responsible parties and/or their contractors must work out mutually agreeable times with the Department's contact person prior to performing any field activities. If the Department's contact person can not be reached, call either the office's general number (631) 854-2501 or FAX the information to (631) 854-2505.

**Table 1. Volatile Organic Compound (VOC) Analytes**

Acetone	cis-1,3-Dichloropropene
Acrylonitrile	trans-1,3-Dichloropropene
t-Amyl methyl ether	1,1-Dichloropropene
Benzene	Diethyl ether
Bromobenzene	p-Diethylbenzene
Bromochloromethane	Ethylbenzene
Bromodichloromethane	p-Ethyltoluene
Bromoform	Freon 113
Bromomethane	Hexachlorobutadiene
t-Butyl ethyl ether	Hexane
n-Butylbenzene	Isopropylbenzene
sec-Butylbenzene	p-Isopropyltoluene
tert-Butylbenzene	Methyl ethyl ketone
Carbon disulfide	Methyl iodide
Carbon Tetrachloride	Methyl isobutyl ketone
Chlorobenzene	Methyl methacrylate
Chlorodifluoromethane	Methyl tert-Butyl Ether(MTBE)
2-Chloroethyl vinyl ether	Methylene Chloride
Chloroform	Naphthalene
Chloromethane	Nonane
Chlorotoluene(s)	Octane
trans-Decahydronaphthalene	n-Propylbenzene
cis-Decahydronaphthalene	Styrene
Decane	1,1,1,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane	1,1,2,2-Tetrachloroethane
Dibromochloromethane	Tetrachloroethene
1,2-Dibromoethane	Tetrahydrofuran
Dibromomethane	1,2,4,5-Tetramethylbenzene
1,2-Dichlorobenzene	Toluene
1,3-Dichlorobenzene	1,2,3-Trichlorobenzene
1,4-Dichlorobenzene	1,2,4-Trichlorobenzene
Dichlorodifluoromethane	1,1,1-Trichloroethane
1,1-Dichloroethane	1,1,2-Trichloroethane
1,2-Dichloroethane	Trichloroethene
cis-1,2-Dichloroethene	1,2,3-Trichloropropane
trans-1,2-Dichloroethene	1,2,4-Trimethylbenzene
1,1-Dichloroethene	1,3,5-Trimethylbenzene
1,2-Dichloropropane	Undecane
1,3-Dichloropropane	Vinyl chloride
2,2-Dichloropropane	Xylene(s)



Table 2. Metal Analytes
Arsenic
Cadmium
Chromium
Chromium +6 (if Total Chromium is found)
Copper
Lead
Manganese
Nickel
Silver
Zinc

Other\* Oil/Grease, Cyanide, TPH, PCB, Pesticides, other Volatile Organics, Semi-Volatile Organics, Mercury and Other Heavy Metals, and other parameters maybe required on a case by case basis.

\*If specifically required based on individual site conditions.